TITLE: TOOL BOX WITH PLANE POSITIONING MEANS

BACKGROUND OF THE INVENTION

(a) Field of the Invention

The present invention is related to a toolbox with an improved structure of plane positioning means, and more particularly, to one that changes its form of a recess to compromise the shape of the tool for storage in position.

(b) Description of the Prior Art:

Job allocation in the community becomes even more minute along the transition of the social environment. More often, people carry tools and equipment to work on site making it important for a toolbox with a secured positioning means to offer the optimal protection and portability.

In less complicate fashion, only a plain box is provided for the storage of the tools without any means to secure the tools in place. Therefore, tools are just stuffed at random in the box and are vulnerable to be damaged due to impacts against one another.

An improved toolbox of the prior art as illustrated in FIG. 1 of the accompanying drawings has a cushion 31 in proper thickness provided on the inner bottom of a box 3 and a recess 32 in a shape to compromise that of the tool to be stored is provided on the cushion 31. When the tool is not used, it is directly placed in the recess 32 to prevent it from moving around in the box

3. The tool is held in position by the edge of the recess 32 and the cushion 31 allows mass production by injection molding or having plastic form cut by manual. However, the box 3 is good only for the type of the tool that fits into the recess 32. The cushion 31 has to be replaced with another one in different shape for another type of tool.

SUMMARY OF THE INVENTION

The primary purpose of the present invention is to provide an improved structure of a toolbox with a plane positioning means that is convenient for the storage of and adaptable to a tool in any shape. To achieve the purpose, multiple perforations are intensively arranged on a base plate with each perforation penetrated through by a support rod with both ends of each support rod being provided each a ball head to prevent it from falling out of the base plate. A packing effect in proper intensity is provided between each support rod and the base plate. The base plate inserted with those multiple support rods is then placed in the box and upon receiving the tool, the inherited weight of the tool (or by applying a proper press), the tool sinks into the base plate when those support rods subject to the weight of the tool (or the external force). Support rods surrounding the tool not subject to the weight of the tool (or the external force) constitute side resistance to help hold the tool in position without moving sideways.

Another purpose of the present invention is to provide an improved structure of a toolbox with a plane positioning means that can be easily adapted to another tool in different shape simply by readjusting the position of each of those multiple support rods. For the same tool, it takes to change the retractable position of each support rod for the first time, and no further change

is required. If the box is used to store another type of tool, just put the box up side down to push all those support rods in flush to readjust the position of each support rod without the use of any other base plate for wider application range and more convenient use.

The foregoing object and summary provide only a brief introduction to the present invention. To fully appreciate these and other objects of the present invention as well as the invention itself, all of which will become apparent to those skilled in the art, the following detailed description of the invention and the claims should be read in conjunction with the accompanying drawings. Throughout the specification and drawings identical reference numerals refer to identical or similar parts.

Many other advantages and features of the present invention will become manifest to those versed in the art upon making reference to the detailed description and the accompanying sheets of drawings in which a preferred structural embodiment incorporating the principles of the present invention is shown by way of illustrative example.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a schematic view of a toolbox of the prior art.

FIG. 2 is a perspective view of a preferred embodiment of the present invention.

FIG. 3 is a schematic view showing a tool is placed in the preferred embodiment of the present invention.

FIG. 4 is a side view showing the tool is placed in the preferred embodiment of the present invention.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

The following descriptions are of exemplary embodiments only, and are not intended to limit the scope, applicability or configuration of the invention in any way. Rather, the following description provides a convenient illustration for implementing exemplary embodiments of the invention. Various changes to the described embodiments may be made in the function and arrangement of the elements described without departing from the scope of the invention as set forth in the appended claims.

Referring to FIG. 2, a preferred embodiment of the present invention is essentially comprised of a base plate 11 to be placed in a box 1 and multiple support rods 2. Multiple through holes 111 intensively arranged in the base plate 11. Each support rod 2 is made in an outer diameter equal to the inner diameter of the through hole 111 for the support rod 2 to penetrate through its corresponding through hole 111 with a proper packing force. Both ends of the support rod 2 are each provided with an expansion head 21, 22 to prevent from falling out of the through hole 111.

Now referring to FIGS. 3 and 4, a tool 4 is place on those support rods 2 in the box 1 and sinks onto by its inherited weight by compressing the affected support rods 2 to retract under the base plate 11 while those support rods 2 surrounding the peripheral of the tool 4 maintain their extended status and

produce positioning effects sideways to the tool 4 by effectively preventing it from laterally sliding in either way.

The present invention can be applied to the tool 4 disregarding its shape with only one adjustment of those multiple support rods 2 for the first time. If the present invention is to be used for the storage of another type of tool 4, the box 1 is put up side down to push out all the support rods 2 then restored for all them to stay flushed at their heads to receive the placement of another type of tool 4.

Furthermore, the head of the support rod 2 may be also provided in polygonal shape instead of a circular one.

It will be understood that each of the elements described above, or two or more together may also find a useful application in other types of methods differing from the type described above.

While certain novel features of this invention have been shown and described and are pointed out in the annexed claim, it is not intended to be limited to the details above, since it will be understood that various omissions, modifications, substitutions and changes in the forms and details of the device illustrated and in its operation can be made by those skilled in the art without departing in any way from the spirit of the present invention.